

Appl. No. 10/032,156  
Amdt. dated February 28, 2006  
Response to Notice of Allowance December 30, 2005

PATENT

**Amendments to the Specification:**

Please replace paragraph [130] with the following amended paragraph:

--[130] Hamming decoder 1210 is also coupled to receive input symbols and redundant symbols from the reconstruction buffer 1215. Additionally, Hamming decoder 1210 receives the number K of input symbols, and the number D, where D+1 is the number of redundant Hamming symbols. Hamming decoder 1210 attempts to recover those input symbols not recovered by the dynamic decoder and the LDPC decoder [2005]1205. While the aim of LDPC decoder [2005]1205 is to recover as many as possible input and redundant symbols, Hamming decoder [2010]1210 only attempts to recover the input symbols IS(0), IS(1), ..., IS(K-1).--

Please replace paragraph [136] with the following amended paragraph:

--[136] Dynamic matrix generator 1305 and static matrix generator 1310 will now be described in further detail with reference to dynamic encoder 500 of Fig. 5 and static encoder [205]210 in Fig. 2. Fig. 18 is a simplified flow diagram illustrating one embodiment of a method employed by dynamic matrix generator 1305. In step 1405, dynamic matrix generator 1205 initializes a matrix C of format (K+A) x (K+R) to all zeros. Next, in step 1410, the keys  $I_a$ ,  $I_b$ , ... are used in conjunction with weight selector 510 and associator 515 to generate the weights  $W(0), \dots, W(K+A-1)$ , and the lists  $AL(0), \dots, AL(K+A-1)$ , respectively. Each of the lists  $AL(k)$  comprises  $W(k)$  integers in the range  $0, \dots, K+R-1$ . In step 1415, these integers are used to compute  $C(k,l)$ : Where  $AL(k)=(a(0), \dots, a(W(k)-1))$ , the entries  $C(k,a(0)), \dots, C(k,a(W(k)-1))$  are set to 1. As explained above, matrix C gives rise to a system of equations for the unknowns  $(IS(0), \dots, IS(K-1), RE(0), \dots, RE(R-1))$  in terms of the received symbols  $(B(0), \dots, B(K+A-1))$ . The reason is the following: once dynamic encoder chooses weight  $W(k)$  and associate list  $AL(k)=(a(0), \dots, a(W(k)-1))$ , the corresponding output symbol  $B(k)$  is obtained as

$$B(k) = L(a(0)) \oplus L(a(1)) \oplus \dots \oplus L(a(W(k)-1)),$$

wherein  $L(j)$  denotes the unknown value of reconstruction buffer 1925 at position j. These equations, accumulated for all values of k between 0 and  $K+A-1$ , give rise to the desired system of equations.--

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PATENT

Please replace paragraph [142] with the following amended paragraph:

—[142] Another embodiment of a method for implementing an associator 520 for which N need not be a prime number is shown in Fig. 20. First, in a step 1805, a variable k is initialized to zero. Then, in a step 1810, a random integer Y is generated. In one specific embodiment, the key I for the output symbol is used to seed a random number generator. Then, in step 1815, the integer Y is taken modulo the number N to produce a number between 0 and N-1. In step 1820, the candidate number Y is tested against other numbers Y previously generated (X(0), X(1), ...). If the number Y had been previously generated, then the flow returns to step 1810. Otherwise, in step 1825, it is included in a list X(0), X(1). Then, in step 1830, it is determined whether W(I) numbers have been generated. If not, then the flow returns to step 1810. The result of the flow illustrated in Fig. [8]20 is a list of W(I) numbers X(0), X(1), ... X(W(I)-1), where each number X in the list is a unique integer between 0 and N-1. Then, in a step [835]1835, the list AL(I) is set as the numbers X(0), X(1), ... X(W(I)-1).--